

**NISSC - OCT 96**

**Workshop Report  
on  
The Role of Optical Systems and Devices for Security**

**Panel Chair:** Terry Mayfield, Institute For Defense Analyses

**Panelists:**

Jeff Ingle, National Security Agency  
Muriel Medard, MIT Lincoln Laboratory  
Mark Krawczewicz, National Security Agency  
Bahram Javidi, University of Connecticut

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**Workshop Report  
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**Location/Dates:** Institute For Defense Analyses / 26-28 Feb 1996

**Sponsors:** NSF, DARPA, USAF

**Chair:** Prof. Bahram Javidi

**Participants:** 30 Leading Experts from Industry, Academia, and Government

**Motivation:**

**Exploit Window of Opportunity to Address Security Issues & Possibilities  
in Emerging Optical Systems and Devices Research**

**Objectives:**

**Determine State of Research in U.S.  
Identify Major R&D Goals  
Propose Strategies for Achieving Goals**

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**WORKING GROUPS**

**Security, Including Cryptography, in Optical Networks**  
**Applications of Optical Processing Techniques to Security Systems**  
**Systems, Devices, and Components**  
**Algorithms, Including Pattern Recognition and Neural Networks**  
**Strategies to Provide R&D Funding by Government & Industry**

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**PROPOSED TECHNICAL AREAS FOR FURTHER RESEARCH**

**Secure, Optoelectronic and All-Optical Network Architectures**  
**Optical Information Security Systems**  
**High-Performance Image Information Processing**  
**High-Performance Optical Devices and Components**

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**STRATEGIES FOR ACHIEVING GOALS**

**Encouraging Cross-Disciplinary and Joint Research among Researchers**

- Algorithmic
- Systems Integration
- Materials & Devices

**Identifying Industrial/Commercial Applications of Optoelectronics to Encourage R&D Funding**

**Focusing on How Optics can Complement Existing Systems in Supplying Security Applications**

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**PANEL PRESENTATIONS**

**Muriel Medard: "Security Issues for All-Optical Networks"**

**Jeff Ingle: "Security for All-Optical Networks"**

**Mark Krawczewicz: "Compact Fingerprint Scanner Techniques"**

**Bahram Javidi: "Optical Processing Systems for Encryption, Security Verification, and Anticounterfeiting"**

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